INSTITUTE DATA

FORUM PARTICIPANT

Giovanni Gallina

INSTITUTE NAME

I.C.I.T.E. Central Institute for Building Industrialization and Technology

INSTITUTE AFFILIATIONS

CNR NATIONAL RESEARCH COUNCIL

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LOCATIONS

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ENTRY DATE

September 1995

STAFF NUMBERS

79

FUNDING

$1,400,000 Annual 60% Government 40% Other Sources

CAPABILITY STATEMENT

STRATEGIC OBJECTIVES OF RESEARCH

I. To conduct continuons research in the field of building, with particular regard to the industrialization of building and manufacturing technology, according to the general plans and directives promulgated by National Research Council.
II. To work in cooperation with scientific institutes both in Italy and abroad;
III. To supervise the production of documentation in its specific field;
IV. To undertake research regarding standards in its specific field
V. To contribute to the training and specialization of scientific and technical staff;
VI. To use its facilities to confer research doctorates;
VII. To carry out privately - commissioned research contracts;
VIII. To offer high-level technical and scientific services to private clients;

CAPABILITY AREAS

I. Information and Technical Communications Service
II. Certification and External Relation Service
III. Cement Quality Control Service
IV. Technical and Maintenance Service
V Physics of Building Construction Division
VI. Structures Technology Division
VII. Components and Plant Technology Division
VIII. Materials Division
IX. Cladding Technology Division
X. Building Renovation Technology Division
XI. Fire Safety Division

SPECIAL FACILITIES

In 1992 a test laboratory was created for the phisical and technical analysis of materials and the application of such data in fire modelling. The laboratory includes equipment for the classification of materials according to their reaction to fire, as detailed in Italian standards, the Cone Calorimeter and the NBS chamber for measuring optic smoke density.

In addition to this laboratory ICITE can rely on a chemical laboratory to assess the materials by using technologies such as thermogravimetry and spectophotometry.

RESEARCH PROGRAM

RESEARCH PROJECTS (Titles and Objectives)

I. FIRE MODELLING IN BUILDING WITH A CAD-BASED GRAPHICAL USER INTERFACE

- allowing the software to be applied by fire safety engineers in a user friendly way
- taking into account a representative set of fire scenarios and the variability of their development
- incorporating a fire & smoke transport modelling software with a sufficient accuracy but within the execution time constraints related to the need to run the models thousands of times with a reasonable time and computing budget
- incorporating a suitable model for the prediction of the occupants movement producing results in a form useful to fire safety engineers.

II. APPLICATION OF CONE CALORIMETER FOR THE ASSESSMENT OF CLASS OF FLAME RETARDANTS

The application of cone calorimeter for the assessment of the thermal characteristics of tested materials and their comparison with thermogravimetry are the central point of this research.

III. FEASIBILITY STUDY FOR THE FIRE SAFETY ENGINEERING DESIGN OF BUILDINGS

The study has been prepared to satisfay the particular needs for the fire safety engineering design in building of research activities.

The main direction of the work is to recognise contents or research over the next 3 years. The study is also intended to became a means for promoting other public and private research initiatives (Universities, Research centres, Enterprise, etc.)

MAJOR ISSUES FOR THE NEXT 3 YEARS

I. development of a research programme for the fire safety engineering design of buildings.
II. research activity in the field of fire modelling
III. research activity on flame retardants
IV. joint education programme on fire safety with universities

COLLABORATION

INTERNATIONAL LINKS

I. CIB
II. C.E.N. European Committee for Standardization

RESEARCH OVERLAP WITH OTHER FORUM PARTICIPANTS

POTENTIAL COLLABORATION THROUGH FORUM

I. Reaction to fire
II. Fire modelling
III. Risk assessment modelling
IV. Flame retardant
V. Education programme on fire safety

RECENT PUBLICATIONS

G.Gallina, E.Bravin, C.Badalucco, A.Lancia, L.Bordignon, M.Sini *"A software package for deterministic and stochastic modelling of fires in building with a CAD-based graphical user interface."*
A European Symposium on Research & Application in Fire Engineering & Emergency Planning, NIMES, FRANCE 22-24 October,1994

G.Gallina, E.Bravin, C.Badalucco, A.Lancia, L.Bordignon, M.Sini *FIRE MODELLING IN BUILDING WITH A CAD-BASED GRAPHICAL USER INTERFACE " Conference Fire Safety By Design, 10-12 July 1995 , University of Sunderland, UK.*

G.Gallina, E.Bravin, C.Badalucco, G.Audisio, M.Armanini, A.De Chirico, F.Provasoli
"*APPLICATION OF CONE CALORIMETER FOR THE ASSESSMENT OF CLASS OF FLAME RETARDANTS FOR POLYPROPYLENE*" 50th Calorimetry Conference, NIST, Gaithersburg, MD,USA, July 23-28 ,1995